

DETERMINANTS OF LOW CARBON SUPPLY
CHAIN IN MALAYSIAN MANUFACTURING
INDUSTRY: PRACTICES AND ITS
RELATIONSHIP ON GREEN SUPPLY CHAIN
OPERATIONAL PERFORMANCE AND LOW
CARBON PERFORMANCE

MUHAMMAD SHABIR SHAHARUDIN

DOCTOR OF PHILOSOPHY

UNIVERSITI MALAYSIA PAHANG



SUPERVISOR'S DECLARATION

We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.

(Supervisor's Signature)

Full Name : DR. YUDI FERNANDO

Position : SENIOR LECTURER

Date :

(Co-supervisor's Signature)

Full Name : PROFESSOR DATO' DR. HASNAH BINTI HARON

Position : PROFESSOR

Date :



STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

(Student's Signature)

Full Name : MUHAMMAD SHABIR BIN SHAHARUDIN

ID Number : PPT 17012

Date :

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MUHAMMAD SHABIR SHAHARUDIN

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ABSTRAK

Perubahan iklim semasa merupakan penyumbang utama kepada kelestarian alam. Penyumbang utama perubahan iklim ini adalah kerana pelepasan karbon yang tinggi. Oleh itu, sarjana dan pengamal industri telah memberi tumpuan kepada pengurangan pelepasan karbon di dalam rantai bekalan dan operasi syarikat pembuatan. Ini adalah kerana syarikat di sektor pembuatan mempunyai kadar pencemaran karbon yang tinggi. Walau bagaimanapun, model rantai bekalan sedia ada tidak mampu mengurangkan pelepasan karbon kerana ketiadaan langkah amalan pengurangan karbon yang menyeluruh. Justeru, penyelidikan ini adalah bertujuan untuk membangunkan model pengurangan karbon didalam rantai bekalan yang berlandaskan teori. Selain itu, kajian ini juga bertujuan untuk menganalisa hubungkait antara penentu dengan amalan pengurangan karbon rantai bekalan serta hubungkait antara amalan pengurangan karbon rantai bekalan dengan prestasi karbon rendah. Selain itu, penyelidikan ini juga telah memperkenalkan pembolehubah pengantara prestasi operasi rantai bekalan hijau. Metodologi kuantitatif telah digunapakai oleh kajian ini bagi menjawab kajian objektif. Sebanyak 700 kajian soal selidik telah dihantar kepada syarikat pembuatan yang berdaftar dibawah Persekutuan Perkilangan Malaysia dan sebanyak 143 soal selidik telah diterima lengkap untuk tujuan analisa. Analisa kajian dilakukan dengan menggunakan perisian IBM SPSS versi 24 dan SmartPLS versi 3.2.8. Hasil kajian mendapati amalan pengurangan karbon rantai bekalan mempunyai hubungan positif dan penting kepada prestasi karbon rendah oleh syarikat pembuatan. Selain itu, kajian menunjukkan prestasi operasi rantai bekalan hijau mampu menjadi pengantara dan meningkatkan hubungan antara amalan pengurangan karbon rantai bekalan dengan prestasi karbon rendah. Tambahan pula, tekanan dari pelanggan didapati mempunyai pengaruh lebih memaksa berbanding peraturan kerajaan didalam amalan pengurangan karbon rantai bekalan. Keseluruhan hasil kajian ini menyumbang kepada pembangunan teori institusi dan kajian literatur rantai bekalan dan operasi. Hasil penyelidikan juga dapat membantu syarikat untuk meningkatkan prestasi penjagaan alam sekitar dan prestasi operasi syarikat.

ABSTRACT

Climate change has become one of the most critical sustainability challenges. One of the most evident contributor of climate change is carbon emissions. Therefore, academia and firms are focusing on carbon emissions reduction in both the supply chain and operations as manufacturing and supply chain activities emit high carbon emissions. Nevertheless, the current supply chain model lack of carbon emissions abatement. Thus, this study's objectives are to develop a theoretical model for low carbon supply chain and to examine the relationship between determinants on low carbon supply chain practices and the practices with low carbon performance. In addition, this study also investigates the mediating effect of green supply chain operational performance. The methodology adopted in this study is of a quantitative method. 700 survey questionnaires were sent out to manufacturing firms registered with Federal of Manufacturers Malaysia and 143 completed questionnaires were collected and analyzed. This study uses IBM SPSS version 24 and SmartPLS version 3.2.8 software to analyze the data. Based on the finding, it shows that low carbon supply chain practices have positive effect on low carbon performance of firms. In addition, the mediating effect of green supply chain operational performance was found to mediate the relationship and improve low carbon supply chain practices of manufacturing firms. It was further found that customer pressure has a coercive nature compared to government regulations. These findings have contributed to the extension of Institutional theory knowledge and the literature of supply chain and operations. The comprehensive low carbon supply chain model has also been proven valid and reliable to help manufacturing firms meet environmental performance and operational performance. The introduction of mediating effect to improve low carbon performance has also contributed to the literature as currently firms are split in decision whether to achieve environmental performance or operational performance. The finding shows that manufacturing firms achieved better results with both performances. Practically, manufacturing firms are recommended to adopt green supply chain operational performance in order to achieve better low carbon performance.

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